

File No. 71646 Body

DRAFTER’S ANALYSIS: This ordinance moves the regulations concerning Outdoor Lighting from Section 10.085 to Chapter 29 in the newly created Section 29.36. It also reduces the allowable illumination for unshielded outdoor lighting in 29.36(3)(a)2., which was previously addressed by 10.085(3)(a)2.

The Common Council of the City of Madison do hereby ordain as follows:

1. Section 10.085 entitled “Outdoor Lighting” of the Madison General Ordinances is repealed.
2. Section 29.36 entitled “Outdoor Lighting” of the Madison General Ordinances is created as follows:

“29.36 OUTDOOR LIGHTING

(1) Purpose and Intent. This ordinance regulates all outdoor lighting installed on residential site and commercial site property, both publicly and privately owned within the City of Madison with the exception of outdoor lighting on public streets, public bikeways and public walkways which are regulated elsewhere in the ordinances. The purpose of this ordinance is to create standards for outdoor lighting that do not interfere with the reasonable use of commercial site and residential site property, that prevent light trespass and conserve energy yet maintain night time safety. Installation of outdoor lighting is not mandatory but if installed, it shall be in conformance with the provisions of the ordinance, the building code and all other codes and regulations as applicable and under appropriate permit and inspection.

(2) Definitions .

Commercial Site shall mean a tract consisting of one or more contiguous lots or parts of lots which are to be used for interdependent ingress and egress of vehicles and containing one or more off-street loading or parking facilities or any commercial site having five (5) or more parking stalls.

Covered Parking Facilities shall mean a parking facility with an overhead covering and shall include all floors except the roof level of a multilevel parking structure or ramp.

Driveway shall mean every way or area used for vehicular travel back of the street right-of-way line.

Footcandle shall mean the illumination of a surface one foot distant from a source of light equivalent to one candle.

Building Inspection Division shall mean the Building Inspection Division of the City Department of Planning and Community and Economic Development.

Installation shall mean the attachment or assembly, whether or not connected to a power source, of any outdoor light fixture affixed to the ground, a building, a pole or any other supporting structure or device.

Light Trespass shall mean stray light or spill light flowing across the property boundary.

Lighting Sources shall mean any lamp or manufactured device emitting energy that is capable of exciting the retina and producing a visual sensation. The energy

emitted shall fall within the electromagnetic spectrum to a length of between 380 and 770 nanometers. Such devices shall include, but are not limited to, incandescent, fluorescent, carbon arc, quartz-iodine/tungsten halogen, low pressure sodium, high pressure sodium, metal halide and mercury vapor lamps.

Non-Shielded or Non-Cutoff Lighting Fixtures shall mean all types of outdoor lighting fixtures other than shielded or cutoff lighting fixtures and includes any lighting fixture that employs an adjustable bracket, refractorizing glassware or lenses, a non-shielded lamp or light source and distributes light at any angle more than four degrees (4°) above horizontal.

Open Parking Facilities shall mean a parking facility without an overhead covering and shall include the roof level of a multilevel parking structure or ramp.

Outdoor Canopy shall mean a free-standing roof structure without side walls which may or may not be attached to the roof of an adjacent building and which shall include but shall not be limited to canopies over gas station pumps or canopies at convenience stores.

Outdoor Lighting Fixtures shall mean lighting sources which are electrically powered illuminating devices, lighted or reflective surfaces, lamps and similar devices, permanently installed or portable, used for illumination or for advertisement. Such devices shall include, but are not limited to, searchlights, spotlights, floodlights, streetlights, sign lights, security lights, wall lights, porch lights, area lights, parking area lights, sports lights and sign panels.

Outdoor Merchandizing Area shall mean car sales lots, equipment sales lots, retail gasoline stations, garden centers, and other similar areas where products are permanently displayed or dispensed outdoors.

Person shall mean any individual, tenant, lessee, owner, operator, or any public, private, nonprofit, or commercial entity including but not limited to, firm, business, partnership, joint venture, association, corporation, municipality, agency or governmental agency.

Residential Site shall mean a single parcel in a residential zone containing a residential structure of one or more dwelling units with a parking facility for one (1) or more cars.

Shielded or Cutoff Lighting Fixtures shall mean outdoor lighting fixtures that utilize flat, clear lenses with no refractorizing elements and which operate in a horizontal position with nonadjustable mounting hardware or brackets. Such fixtures distribute light by means of an internal reflector only. The light source is totally concealed by the fixture housing when the position of observation is at an angle less than fifteen degrees (15°) above horizontal. No light is permitted at an angle more than four degrees (4°) above horizontal.

Uniformity Ratio shall mean the ratio between the average illumination and the minimum illumination as determined by measurements taken on a four-foot grid throughout the area to be lighted.

(3) General Requirements .

- (a) All outdoor lighting fixtures installed and thereafter maintained upon private or public residential, commercial, industrial and other nonresidential property shall comply with the following:

1. The maximum allowable light trespass shall be 0.5 horizontal footcandles four (4) feet above the ground. The point of measurement of this offending light shall be at any point at the outer wall of an adjacent building occupied for residential or public use, or at any point greater than 10 feet from the adjacent lot line. This measurement shall not include any ambient, natural light.
 2. All fixtures greater than ~~4,000~~ 500 initial lumens (equivalent to ~~70~~ 40 watts incandescent or 8 watt LED) shall be full cutoff, or shall be shielded or installed so that there is not a direct line of sight between the light source or its reflection and a point five (5) feet or higher above the ground at the property boundary. The light source shall not be of such intensity so as to cause discomfort or annoyance.
 3. Any outdoor lighting fixture installed on a parking lot, parking structure or outdoor merchandizing area shall use either high-pressure sodium, metal halide, fluorescent lamps, or any other lamps that produce thirty (30) or more lumens per watt. The lighting system shall be extinguished or reduced to fifty percent (50%) no later than thirty (30) minutes after the close of business for the day or after the end of normal office hours for the majority of employees.
 4. All lamp types utilized for search lighting and/or spot lighting for advertising purposes shall not be operated past 11:00 P.M.
- (b) All outdoor lighting fixtures installed prior to March 30, 1993 shall be exempt from this ordinance except as follows:
1. If any modifications, construction or changes to an existing outdoor lighting fixture system is proposed to fifty percent (50%) or more of the total number of fixtures, then all fixtures shall comply with the provisions of this ordinance.
 2. All outdoor lighting fixtures installed on residential parking facilities irrespective of installation date shall conform to subsection (4)(c) herein.
- (c) All outdoor lighting fixtures shall be maintained according to approved plans.
- (d) Trees and shrubbery shall not be located where they significantly reduce or block the lighting of parking facilities or roadways.
- (e) Outdoor lighting fixtures may be used to illuminate buildings and structures; recreational areas, sports fields and courts; parking lots; parking structures, garages, or ramps; landscape areas; outdoor merchandizing areas; building overhangs and open canopies. Outdoor lighting fixtures may be installed to provide building and parking lot security.
- (4) Specific Design Requirements .
- (a) A lighting system for parking facilities and outdoor merchandizing areas in commercial, industrial, agricultural and recreational areas shall be designed to provide the lighting intensities and uniformities described as follows:
1. Open Parking Facilities . The illumination requirements of an open parking facility depend on the amount of usage the facility receives. Three levels of activity shall be established as High, Medium and Low, reflecting both traffic and pedestrian activity. The following examples are nonexclusive and include:
 - a. High Activity : Facilities for major or league athletic events or major cultural or civic events.
 - b. Medium Activity : Shopping centers, retail parking areas, hospital and clinic parking areas, transportation parking (airports, commuter lots, etc.), cultural, civic or recreational events, and fast food facilities.

c. Low Activity : Employee parking, educational facility parking, office parks and church parking.

2. Horizontal Illuminances for Parking Facilities .

a. Open Parking Facilities .

General Parking & Pedestrian Area					Vehicle Use Area (Driveway)		
Level of Activity	Min. Footcandles ¹ on Pavement	Max Avg Footcandles on Pavement	Max Uniformity Ratio ¹ (Avg:Min)	Max. Watts ³ /Sq Foot Lighting Load ²	Minimum Footcandles ¹ on Pavement	Max Avg Footcandles on Pavement	Maximum Uniformity Ratio ¹ (Avg:Min)
High	0.6 fc	3.75 fc	5:1	.12	.67 fc	2.5 fc	5:1
Med	0.4 fc	2.5 fc	5:1	.10	.33 fc	1.5 fc	5:1
Low	0.2 fc	1.5 fc	5:1	.08	.125 fc	1.0 fc	5:1

b. Covered Parking Facilities .

Areas	Minimum Footcandle Average on Pavement	Minimum Footcandles on Pavement	Maximum Average Footcandles on Pavement	Maximum Uniformity Ratio (Avg:Min)	Maximum Watts ³ /Sq Ft Lighting Load
General Parking and Pedestrian Areas	5 fc	1.25 fc	9 fc	4:1	.2
Private Controlled Entry Parking	3 fc	.75 fc	6 fc	4:1	.2

¹ Not mandatory within 4 feet of the pavement edge.

² Not mandatory for driveways.

³Watts shall mean lamp wattage and ballast consumption.

- (b) An outdoor lighting system for illuminating buildings and structures shall have a maximum connected lighting load of five (5) watts per lineal foot. Watts shall mean lamp wattage and ballast consumption. Such lighting shall be shielded or installed so as to illuminate the building, and not the sky.
- (c) A parking facility for more than three (3) cars on a residential site shall be lighted to provide at least .25 footcandles on any surface with an average illumination level of at least .75 footcandles. Outdoor light fixtures shall be designed and installed to minimize light trespass. In addition, the uniformity ratio between the average illumination and minimum illumination shall be no greater than 4:1. (Am. by ORD-05-00055, 4-6-05)
- (d) For an outdoor merchandizing area, the maximum initial illumination level in 75% of the lot shall not exceed 20 footcandles. A contiguous area not to exceed 25% of the lot may be illuminated to a level which shall not exceed 40 footcandles.
- (e) The maximum initial illumination level under an outdoor canopy shall not exceed 50 footcandles at any point.

(5) Approval Procedures .

- (a) Any person desiring to install outdoor lighting fixtures greater than 1,000 initial lumens shall submit to the Building Inspection Division for review the following materials:

1. A catalog page, cut sheet or photograph of the lighting fixtures including the mounting method.
 2. A photometric data test report of the proposed lighting fixture graphically showing the lighting distribution in all angles vertically and horizontally around the fixture.
 3. A plot plan showing the location of all outdoor lighting fixtures proposed, the mounting or installation height, the overall initial illumination levels and uniformities and the point where 0.5 horizontal footcandles occurs on the property or adjacent property at a distance four (4) feet above the ground. This may be accomplished by means of an isolux curve or computer printout projecting the illumination levels.
 4. A graphic depiction of the lighting fixture's lamp concealment and light cutoff angles.
- (b) Upon review of the material described above, the Building Inspection Division may authorize the installation of outdoor lighting fixtures.
- (6) Administrative Exemption.
- (a) Any person may submit a written request to the Building and Fire Code Review and Appeals Board for an administrative exemption from the requirements of this ordinance. The basis for an administrative exemption shall be any one or more of the following reasons: the provisions of the ordinance do not fully apply; the application of the ordinance may cause a manifest injustice to be done; the compliance time required for compliance with the ordinance is unreasonable; an alternate plan for outdoor lighting is equally good or better than standards set by the ordinance. The request shall state fully the circumstances and conditions relied upon as the basis for an administrative exemption and shall be accompanied by plans and legal description of the property involved. In addition, the request shall contain the following information:
1. Name, address and telephone number of the applicant.
 2. Location of the outdoor lighting fixtures for which the exemption is requested.
 3. The nature of the circumstances which necessitate the exemption.
 4. Use of the outdoor lighting fixture involved.
 5. All description data as called for in subsection (5) herein.
 6. Such other data and information as may be required by the Board.
- (b) In considering whether to grant the request for an administrative exemption from the ordinance, the Building and Fire Code Review and Appeals Board may consider the following factors:
1. Special circumstances or conditions applying to the land, building or outdoor lighting fixture for which the exemption is sought;
 2. Deprivation to the applicant of the reasonable use of the land, buildings or outdoor lighting fixtures that strict application of the ordinance may cause;
 3. The effect of the granting of the exemption on the public welfare.
- (7) Penalties. Any person violating the provisions of this ordinance shall be fined not less than twenty-five dollars (\$25) nor more than two hundred dollars (\$200) and each day of continued violation shall constitute a separate offense.

Editor's Note:

Chapter 10.085 – of the Madison General Ordinance currently reads as follows:

10.085 - OUTDOOR LIGHTING.

(1) Purpose and Intent. This ordinance regulates all outdoor lighting installed on residential site and commercial site property, both publicly and privately owned within the City of Madison with the exception of outdoor lighting on public streets, public bikeways and public walkways which are regulated elsewhere in the ordinances. The purpose of this ordinance is to create standards for outdoor lighting that do not interfere with the reasonable use of commercial site and residential site property, that prevent light trespass and conserve energy yet maintain night time safety. Installation of outdoor lighting is not mandatory but if installed, it shall be in conformance with the provisions of the ordinance, the building code and all other codes and regulations as applicable and under appropriate permit and inspection.

(2) Definitions.

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Covered Parking Facilities shall mean a parking facility with an overhead covering and shall include all floors except the roof level of a multilevel parking structure or ramp.

Driveway shall mean every way or area used for vehicular travel back of the street right-of-way line.

Footcandle shall mean the illumination of a surface one foot distant from a source of light equivalent to one candle.

Building Inspection Division shall mean the Building Inspection Division of the City Department of Planning and Community and Economic Development. (Am. by ORD-08-00109, 10-7-08)

Installation shall mean the attachment or assembly, whether or not connected to a power source, of any outdoor light fixture affixed to the ground, a building, a pole or any other supporting structure or device.

Light Trespass shall mean stray light or spill light flowing across the property boundary. (Am. by Ord. 13,717, 10-26-04)

Lighting Sources shall mean any lamp or manufactured device emitting energy that is capable of exciting the retina and producing a visual sensation. The energy emitted shall fall within the electromagnetic spectrum to a length of between 380 and 770 nanometers. Such devices shall include, but are not limited to, incandescent, fluorescent, carbon arc, quartz-iodine/tungsten halogen, low pressure sodium, high pressure sodium, metal halide and mercury vapor lamps.

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Open Parking Facilities shall mean a parking facility without an overhead covering and shall include the roof level of a multilevel parking structure or ramp.

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 2. All fixtures greater than 1,000 initial lumens (equivalent to 70 watts incandescent) shall be full cutoff, or shall be shielded or installed so that there is not a direct line of sight between the light source or its reflection and a point five (5) feet or higher above the ground at the property boundary. The light source shall not be of such intensity so as to cause discomfort or annoyance.
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High	0.6 fc	3.75 fc	5:1	.12	.67 fc	2.5 fc	5:1
Med	0.4 fc	2.5 fc	5:1	.10	.33 fc	1.5 fc	5:1
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4. A graphic depiction of the lighting fixture's lamp concealment and light cutoff angles.

(b) Upon review of the material described above, the Building Inspection Division may authorize the installation of outdoor lighting fixtures. (Am. by ORD-08-00109, 10-7-08)

(6) Administrative Exemption.

(a) Any person may submit a written request to the Building and Fire Code Review and Appeals Board for an administrative exemption from the requirements of this ordinance. The basis for an administrative exemption shall be any one or more of the following reasons: the provisions of the ordinance do not fully apply; the application of the ordinance may cause a manifest injustice to be done; the compliance time required for compliance with the ordinance is unreasonable; an alternate plan for outdoor lighting is equally good or better than standards set by the ordinance. The request shall state fully the circumstances and conditions relied upon as the basis for an administrative exemption and shall be accompanied by plans and legal description of the property involved. In addition, the request shall contain the following information:

1. Name, address and telephone number of the applicant.
2. Location of the outdoor lighting fixtures for which the exemption is requested.
3. The nature of the circumstances which necessitate the exemption.
4. Use of the outdoor lighting fixture involved.
5. All description data as called for in subsection (5) herein.
6. Such other data and information as may be required by the Board.

(b) In considering whether to grant the request for an administrative exemption from the ordinance, the Building and Fire Code Review and Appeals Board may consider the following factors:

1. Special circumstances or conditions applying to the land, building or outdoor lighting fixture for which the exemption is sought;
2. Deprivation to the applicant of the reasonable use of the land, buildings or outdoor lighting fixtures that strict application of the ordinance may cause;
3. The effect of the granting of the exemption on the public welfare.

(7) Penalties. Any person violating the provisions of this ordinance shall be fined not less than twenty-five dollars (\$25) nor more than two hundred dollars (\$200) and each day of continued violation shall constitute a separate offense.